CLAIMS

We claim:

1. A method of treating a proliferative skin disease, comprising administering to a patient a therapeutically effective amount of ribozyme which cleaves RNA encoding a cytokine involved in inflammation, a matrix metalloproteinase, a cyclin, a cell-cycle dependent kinase, a growth factor, or a reductase such that said proliferative skin disease is treated.

2. A method of treating a proliferative skin disease, comprising administering to a patient an effective amount of nucleic acid molecule comprising a promoter operably linked to a nucleic acid segment encoding a ribozyme which cleaves RNA encoding a cytokine involved in inflammation, a matrix metalloproteinase, a cyclin, a cell-cycle dependent kinase, a growth factor, or a reductase such that said proliferative skin disease is treated.

3. The method according to claims 1 or 2 wherein said proliferative skin disease is psoriasis.

4. The method according to claims 1 or 2 wherein said proliferative skin disease is atopic dermatitis.

5. The method according to claims 1 or 2 wherein said proliferative skin disease is actinic keratosis.

6. The method according to claims 1 or 2 wherein said proliferative skin disease is squamous or basal cell carcinoma.

7. The method according to claims 1 or 2 wherein said proliferative skin disease is viral or seborrheic wart.

8. The method according to claims 1 or 2 wherein said ribozyme is a hammerhead or hairpin ribozyme.

9. The method according to claims 1 or 2 wherein said cell-cycle dependent kinase is CDK1, CDK2, or, CDK4.

10. The method according to claims 1 or 2 wherein said cyclin is PCNA.

11. The method according to claims 1 or 2 wherein said cyclin is Cyclin B1 or Cyclin D.

12. The method according to claims 1 or 2 wherein said cytokine is interleukin 1 alpha and beta, interleukin 2, interleukin 6, interleukin 8, interferon gamma, or tumor necrosis factor.

13. The method according to claims 1 or 2 wherein said matrix metalloproteinase is MMP 1, MMP 2, MMP 3 or MMP 9.

14. The method according to claims 1 or 2 wherein said growth factor is vascular endothelial growth factor, or platelet derived growth factor.

15. The method according to claim 1 wherein said ribozyme is administered topically or intradermally.

16. The method according to claim 2 wherein said nucleic acid molecule is administered intradermally.

17. The method according to claim 1 wherein said ribozyme is formulated within a cream, ointment or lotion.

18. The method according to claim 18 wherein said ribozyme is formulated along with a lipid.

19. The method according to claim 1 wherein said lipid is DOTAP:cholesterol.

20. The method according to claim 1 wherein said ribozyme is formulated with ribonuclease inhibitors.

21. The method according to claim 20 wherein said ribonuclease inhibitor is a reducing agent.

22. The method according to claim 20 wherein said reducing agent is dithiothreitol.

23. The method according to claim 20 wherein said ribonuclease inhibitor is a detergent.

24. The method according to claim 23 wherein the detergent is sodium dodecyl sulfate.

25. The method according to claim 20 wherein said ribonuclease inhibitor is vanidyl nucleotides.

26. The method according to claim 20 wherein said ribonuclease inhibitor is aurin tricarboxcylic acid.

27. The method according to claim 20 wherein said ribonuclease inhibitor is hydrogen peroxide.

28. The method according to claim 20 wherein said ribonuclease inhibitor is an RNA decoy.

29. The method according to claim 28 wherein said RNA decoy is a tRNA.

30. The method according to claim 1 wherein said ribozyme is composed of ribonucleic acids.

31. The method according to claim 30 wherein one or more of said ribonucleic acids are 2'-O-methyl ribonucleic acids.

32. The method according to claim 1 wherein said ribozyme is composed of a mixture of deoxyribonucleic acids and ribonucleic acids.

33. The method according to claim 1 wherein said ribozyme is composed of nucleic acids having phosphothioate linkages.

34. The method according to claim 1 wherein said ribozyme is composed of nucleic acids having propanediol linkages.

35. The method according to claim 2 wherein said nucleic acid molecule is contained within a viral vector.

36. The method according to claim 2 wherein said viral vector is generated from a virus selected from the group consisting of retroviruses, adenoviruses, adeno-associated viruses.

37. A method of treating or preventing scarring, comprising administering to a patient a therapeutically effective amount of ribozyme which cleaves RNA encoding a cytokine

involved in inflammation, a matrix metalloproteinase, a cyclin, a cell-cycle dependent kinase, a growth factor, or a reductase such that said scarring is treated or prevented.

38. A method of treating or preventing scarring, comprising administering to a patient an effective amount of nucleic acid molecule comprising a promoter operably linked to a nucleic acid segment encoding a ribozyme which cleaves RNA encoding encoding a cytokine involved in inflammation, a matrix metalloproteinase, a cyclin, a cell-cycle dependent kinase, a growth factor, or a reductase such that said scarring is treated or prevented.

39. The method according to claims 37 or 38 wherein said scar is a keloid.

40. The method according to claims 37 or 38 wherein said scar is an adhesion.

41. The method according to claims 37 or 38 wherein said scar is a hypertrophic or hypertrophic burn scar.

42. The method according to claims 37 or 38 wherein said ribozyme is a hammerhead or hairpin ribozyme.

43. The method according to claims 37 or 38 wherein said cell-cycle dependent kinase is CDK1, CDK2, or, CDK4.

44. The method according to claims 37 or 38 wherein said cyclin is PCNA.

45. The method according to claims 37 or 38 wherein said cyclin is Cyclin B1 or Cyclin D.

46. The method according to claims 37 or 38 wherein said cytokine is interleukin 1 alpha or beta, interleukin 2, interleukin 6, interleukin 8, interferon gamma, or tumor necrosis factor.

47. The method according to claims 37 or 38 wherein said matrix metaloproteinase is MMP 1, MMP2, MMP3, or MMP9.

48. The method according to claims 37 or 38 wherein said growth factors is VEGF or PDGF.

49. The method according to claim 37 wherein said ribozyme is administered topically or intradermally.

50. The method according to claim 38 wherein said nucleic acid molecule is administered intradermally.

51. The method according to claim 37 wherein said ribozyme is formulated within a cream, ointment or lotion.

52. The method according to claim 37 wherein said ribozyme is formulated along with a lipid.

53. The method according to claim 52 wherein said lipid is DOTAP:cholesterol.

54. The method according to claim 37 wherein said ribozyme is formulated with ribonuclease inhibitors.

55. The method according to claim 54 wherein said ribonuclease inhibitor is a reducing agent.

56. The method according to claim 55 wherein said reducing agent is dithiothreitol.

57. The method according to claim 54 wherein said ribonuclease inhibitor is a detergent.

58. The method according to claim 57 wherein said detergent is sodium dodecyl sulfate.

59. The method according to claim 54 wherein said ribonuclease inhibitor is vanidyl nucleotides.

60. The method according to claim 54 wherein said ribonuclease inhibitor is aurin tricarboxcylic acid.

61. The method according to claim 54 wherein said ribonuclease inhibitor is hydrogen peroxide.

62. The method according to claim 54 wherein said ribonuclease inhibitor is an RNA decoy.

63. The method according to claim 62 wherein said RNA decoy is a tRNA.

64. The method according to claim 37 wherein said ribozyme is composed of ribonucleic acids.

65. The method according to claim 64 wherein one or more of said ribonucleic acids are 2`-O-methyl ribonucleic acids.

66. The method according to claim 37 wherein said ribozyme is composed of a mixture of deoxyribonucleic acids and ribonucleic acids.

67. The method according to claim 37 wherein said ribozyme is composed of nucleic acids having phosphothioate linkages.

68. The method according to claim 37 wherein said ribozyme is composed of nucleic acids having propanediol linkages.

69. The method according to claim 38 wherein said nucleic acid molecule is contained within a viral vector.

70. The method according to claim 38 wherein said viral vector is generated from a virus selected from the group consisting of retroviruses, adenoviruses, adeno-associated viruses.

71. A method of treating a proliferative eye disease, comprising administering to a patient a therapeutically effective amount of ribozyme which cleaves RNA encoding a cytokine involved in inflammation, a matrix metalloproteinase, a cyclin, a cell-cycle dependent kinase, a growth factor, or a reductase such that said proliferative eye disease is treated.

72. A method of treating a proliferative eye disease, comprising administering to a patient an effective amount of nucleic acid molecule comprising a promoter operably linked to a nucleic acid segment encoding a ribozyme which cleaves RNA encoding encoding a cytokine involved in inflammation, a matrix metalloproteinase, a cyclin, a cell-cycle dependent kinase, a growth factor, or a reductase such that said proliferative eye disease is treated.

73. The method according to claims 71 or 72 wherein said proliferative eye disease is proliferative diabetic retinopathy.

74. The method according to claims 71 or 72 wherein said proliferative eye disease is proliferative vitreoretinopathy.

75. The method according to claims 71 or 72 wherein said proliferative eye disease is proliferative sickle cell retinopathy.

76. The method according to claims 71 or 72 wherein said proliferative eye disease is retinopathy of prematurity.

77. The method according to claims 71 or 72 wherein said proliferative eye disease is retinal detachment.

78. The method according to claims 71 or 72 wherein said ribozyme is a hammerhead or hairpin ribozyme.

79. The method according to claims 71 or 72 wherein said cell-cycle dependent kinase is CDK1, CDK2, or, CDK4.

80. The method according to claims 71 or 72 wherein said cyclin is PCNA.

81. The method according to claims 71 or 72 wherein said cyclin is Cyclin B1 or Cyclin D.

82. The method according to claims 71 or 72 wherein said cytokine is interleukin 1 alpha and beta, interleukin 2, interleukin 6, interleukin 8, interleukin 10, interferon gamma, tumor necrosis factor.

83. The method according to claims 71 or 72 wherein said matrix metaloproteinase is MMP 1, MMP2, MMP3, or MMP9.

84. The method according to claims 71 or 72 wherein said growth factors is VEGF or PDGF.

85. The method according to claim 71 or 72 wherein said nucleic acid molecule is administered intraocularly.

86. The method according to claim 71 or 72 wherein said ribozyme is formulated within a solution.

87. The method according to claim 71 wherein said ribozyme is formulated along with a lipid.

88. The method according to claim 87 wherein said lipid is DOTAP:cholesterol.

89. The method according to claim 71 wherein said ribozyme is formulated with ribonuclease inhibitors.

90. The method according to claim 89 wherein said ribonuclease inhibitor is a reducing agent.

91. The method according to claim 90 wherein the reducing agent is dithiothreitol.

92. The method according to claim 89 wherein said ribonuclease inhibitor is a detergent.

93. The method according to claim 92 wherein the detergent is sodium dodecyl sulfate.

94. The method according to claim 89 wherein said ribonuclease inhibitor is vanidyl nucleotides.

95. The method according to claim 89 wherein said ribonuclease inhibitor is aurin tricarboxcylic acid.

96. The method according to claim 89 wherein said ribonuclease inhibitor is hydrogen peroxide.

97. The method according to claim 89 wherein said ribonuclease inhibitor is an RNA decoy.

98. The method according to claim 97 wherein said RNA decoy is a tRNA.

99. The method according to claim 71 wherein said ribozyme is composed of ribonucleic acids.

100. The method according to claim 99 wherein one or more of said ribonucleic acids are 2'-O-methyl ribonucleic acids.

101. The method according to claim 71 wherein said ribozyme is composed of a mixture of deoxyribonucleic acids and ribonucleic acids.

102. The method according to claim 71 wherein said ribozyme is composed of nucleic acids having phosphothioate linkages.

103. The method according to claim 71 wherein said ribozyme is composed of nucleic acids having propanediol linkages.

104. The method according to claim 72 wherein said nucleic acid molecule is contained within a viral vector.

105. The method according to claim 72 wherein said viral vector is generated from a virus selected from the group consisting of retroviruses, adenoviruses, adeno-associated viruses.